AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 18, and continuing to page 1, line 28, as follows:

Some node antennas are linear array antennas with baffles to form the azimuth radiation pattern. This gives a very compact antenna solution. The array is fed by a feed network usually with non-isolated power dividers. This means that the ports of the feed network, as seen from the antenna elements, are not matched. If a portion of the signal is reflected at the aperture, then the power dividers will cause a second reflection to thereby create a standing wave. When an elevation pattern is shaped, it is very important to control the excitation correctly. Reflections between the aperture and the feed network will make this difficult. Additionally the physical limitations on the number of antenna elements in the array will further limit the possibility of shaping the elevation pattern.

Please amend the paragraphs beginning at page 2, line 13, and continuing to page 5, line 3, as follows:

~~An object of the invention is to define~~The technology concerns a transmission line structure that enables the construction of a compact antenna structure~~.~~, as well as ~~A further object of the invention is to define~~ a method and a system for transforming between one or more point type sources and a line source in a transmission line structure. Advantageously, the technology provides ~~A still further object of the invention is to define~~ a compact antenna structure.

~~The aforementioned objects are achieved according to the invention by a~~The technology specifically concerns method and ~~a~~ system for transforming between one or more point type sources and a line source in a transmission line structure. A transmission line path controller is inserted between a first parallel-plate waveguide section and a second parallel-plate waveguide section. The transmission line path controller comprises

a curved side to which one end of each waveguide is coupled. The transmission line path controller further comprises a waveguide slot, one side of which is a part of the curved side, coupling the waveguide ends that are coupled to the transmission line path controller. The ends of the waveguides that are not coupled to the transmission line path controller forms the point type source and the line source, respectively.

~~The aforementioned objects are also achieved according to the invention by a method of transforming between one or more point type sources and a line source in a transmission line structure. The method comprises inserting a transmission line path controller between a first parallel-plate waveguide section and a second parallel-plate waveguide section. The transmission line path controller comprises a curved side to which one end of each waveguide is coupled. T~~In one example aspect of the technology, the one or more point sources are arranged on an end of the first waveguide which is not coupled to the transmission path controller and the line source is arranged on an end of the second waveguide which is not coupled to the transmission path controller. The transmission line path controller further comprises a waveguide slot, one side of which is a part of the curved side. The waveguide slot further couples the waveguide ends that are coupled to the transmission line path controller. The method further comprises adjusting the curved side to get a desired path length between each different wave path of the one or more point sources and the corresponding location of the line source.

~~The aforementioned objects are also achieved according to the invention by a method of transforming between one or more point type sources and a line source in a transmission line structure. The~~ In one of its aspects, the technology concerns a method which comprises inserting a first part of a transmission line path controller between a first parallel-plate waveguide section and a second parallel-plate waveguide section and inserting a second part of the transmission line path controller between the second parallel-plate waveguide section and a third parallel-plate waveguide section. The one or more point type sources being arranged at a first end of the first waveguide and the line source being arranged at a first end of the third waveguide. The first part of the

transmission line path controller comprises a first curved side to which a second end of the first waveguide and a first end of the second waveguide is coupled. The second part of the transmission line path controller comprises a second curved side to which a second end of the second waveguide and a second end of the third waveguide is coupled. The first part of the transmission line path controller further comprises a first waveguide slot, one side of which is a part of the first curved side. The first waveguide slot further couples the waveguide ends that are coupled to the first part of the transmission line path controller. The second part of the transmission line path controller further comprises a second waveguide slot, one side of which is a part of the second curved side. The second waveguide slot further couples the waveguide ends that are coupled to the second part of the transmission line path controller. The method further comprises adjusting the curved sides to get a desired path length between each different wave path of the one or more point sources and the corresponding location of the line source.

~~The aforementioned objects are further achieved according to the invention by~~The technology further concerns a transmission line structure. The structure comprises a first parallel-plate waveguide section and at least one first electromagnetic wave port of substantially point character at a first end of the first waveguide. The first waveguide will propagate an electromagnetic wave entered at the at least one first port of the first end of the first waveguide towards a second end of the first waveguide in a first principal propagation direction. A principal direction of a wave is the vector sum of all individual propagation directions along the wavefront of the wave. The structure further comprises a second parallel plate waveguide section and a second electromagnetic wave port of a predetermined line character at a first end of the second waveguide. The second waveguide will propagate in a second principal direction between a second end of the second waveguide and the second port of the first end of the second waveguide an electromagnetic wave which is entered at the at least one first port. According to ~~the invention~~an example embodiment the structure comprises a transmission line path controller which controls a propagation path length of an electromagnetic wave passing

through it in relation to where the electromagnetic wave passes through the path controller. A first part of the path controller further changes the first principal propagation direction to a controller principal propagation direction for an electromagnetic wave entering the at least one first port. The first part of the path controller is coupled to the second end of the first waveguide and comprises a first slot in a first slot plane, the first slot having at least two curved sides.

Please amend the paragraphs beginning at page 9, line 1, and continuing to page 9, line 21, as follows:

~~The aforementioned objects are also achieved according to the invention by~~The technology also concerns an antenna comprising a transmission line structure according to any one of the above mentioned embodiments.

By providing a transmission line structure according to the invention a plurality of advantages over prior art are obtained. A primary purpose of the ~~invention~~ technology is to enable a compact antenna to be constructed by providing a novel transmission line structure, which transforms one or more point type sources to a line source. This is obtained ~~according to the invention~~ by incorporating a curved slot between and coupling two waveguides together. The two waveguides are coupled together by means of the curved slot such that there is a change in a principal propagation direction in the curved slot. The curved slot is oriented such that there is a curvature perpendicular to the principal propagation direction in the waveguides. The curvature of the curved slot determines the appearance of the line source. According to ~~the invention a~~an example embodiment, a bent propagation path and a propagation path length controller are accomplished thus enabling a folded feed network which provides a line source to an antenna. The transmission line structure is easy to construct by means of different waveguide technologies and is suited for both E-plane and H-plane broadband propagation. Other advantages of ~~this invention~~the technology will become apparent from the detailed description.

Please amend the paragraphs beginning at page 9, line 27, and continuing to page 11, line 14, as follows:

Fig. 1 illustrates an E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a plate structure,

Fig. 2 illustrates an H-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a plate structure,

Fig. 3A-3C illustrate further examples of E-plane waveguide path length adjusters according to example embodiments~~the invention~~ in a plate structure, with and without a first port matching,

Fig. 4A-4B illustrate still further examples of E-plane waveguide path length adjusters according to example embodiments~~the invention~~ in a plate structure, with matchings of path controllers,

Fig. 5 illustrates an example of a Cassegrain type E-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a plate structure,

Fig. 6 illustrates an E-plane waveguide path length adjuster with an offset first waveguide into a path controller according to an example embodiment~~the invention~~ in a plate structure,

Fig. 7 illustrates an E-plane waveguide path length adjuster with two first ports into a first waveguide according to an example embodiment~~the invention~~ in a plate structure,

Fig. 8A illustrates separate parts of an H-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a ~~conventional~~ waveguide structure,

Fig. 8B-8C illustrate an H-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a ~~conventional~~ waveguide structure,

Fig. 9A-9B illustrate an E-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a ~~conventional~~ waveguide structure,,

Fig. 10 illustrates an E-plane waveguide path length adjuster where a first waveguide is not parallel with a second waveguide according to an example embodiment~~the invention~~ in a ~~conventional~~ waveguide structure,

Fig. 11 illustrates a baffle antenna with an E-plane waveguide path length adjuster according to an example embodiment~~the invention~~ in a ~~conventional~~ waveguide structure,

Fig. 12 illustrates a reflector antenna with an E-plane waveguide path length adjuster according to conventional~~the invention~~ in a ~~conventional~~ waveguide structure,

Fig. 13 illustrates a double reflector antenna with an E-plane waveguide path length adjuster with two second waveguides according to conventional~~the invention~~ in a ~~conventional~~ waveguide structure.

Please amend the paragraphs beginning at page 11, line 17, and continuing to page 13, line 17, as follows:

In order to clarify the method and device according to ~~the invention~~the technology, some examples of its use will now be described in connection with Figures 1 to 13. Figures 1 to 7 illustrate different waveguide path length adjusters according to ~~the invention~~example embodiments in a plate structure. Figures 8 to 10 illustrate different waveguide path length adjusters according to ~~the invention~~example embodiments in a ~~conventional~~ waveguide structure. Figures 11 to 13 illustrate different antenna structures according to ~~the invention~~example embodiments . Waveguide path length adjusters according to ~~the invention~~example embodiments can be made in any desired waveguide transmission line structure technique, such as in a plate structure technique, in a ~~conventional~~ waveguide structure technique, or in a printed circuit board technique. Printed circuit board technology is especially suitable for compact E-plane waveguide path length adjusters and antenna structures~~according to the invention~~, for example as an antenna part of a car radar. Further, the illustrated waveguides are assumed to have air or another gas as a dielectric, but the invention is by no means restricted to air or gas as a dielectric. A waveguide path length

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adjuster or an antenna structure according to ~~the invention~~example embodiments made by printed circuit board technology will, at least in part, have the carrier material of the printed circuit board as a dielectric. A ~~conventional~~ waveguide structure can also be filled with a non-gaseous dielectric.

Figure 1 illustrates an E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a plate structure. The manufacturing of the plate structure is described in US patent 6,285,335 and is one of many methods of manufacturing a transmission line structure according to the ~~invention~~technology. Illustrated are the individual waveguide and cover plates that are intended to be joined, sandwiched, together before use. According to this transmission line structure, there are a number of waveguide plates 120, 140, and a number of cover/interface plates 110, 130, 150. The thicknesses 101 of the waveguide plates 120, 140, are not necessarily the same for all of the waveguide plates 120, 140. The cover/interface plates 110, 130, 150, can be of any desired thickness, the properties of the ~~invention~~ technology are not changed with the thickness of these, and they are therefore only illustrated as thin plates.

The waveguide path length adjuster according to the ~~invention~~an example embodiment, here illustrated as an E-plane transmission line, comprises at least one first port 191, of a point source type, and a second port 195, of a line source type. It is to be noted that the waveguide path length adjuster according to ~~the invention~~this example embodiment is completely bi-directional, i.e. the first port can be a source feed for something connected to it, or be fed from something connected to it. A normal use would be to connect an antenna, such as a reflector antenna, to the second port and a transceiver to the first port, i.e. the waveguide path length adjuster according to the ~~invention~~ technology would be used for both transmission and reception. This description will however mainly describe the function of the waveguide path length adjuster according to the ~~invention~~ technology in situation when an electromagnetic wave is entered at the first port 191.

According to the ~~invention~~ technology, different parts of a wavefront 102, 106 have similar, or in some embodiments substantially equal, path lengths between a first waveguide

section 160 and a second waveguide section 180 enabling one or more point type sources 191 to be transformed into a line source 195, and vice versa. According to ~~the invention~~ an example embodiment this is accomplished by a waveguide slot 170 comprising two curved sides 172, 174, that is arranged between and which slot 170, in a waveguide manner, couples a first parallel waveguide section 160 and a second parallel waveguide section 180. According to this example of Figure 1, an electromagnetic wave is entered through a mechanical coupling 192, to a first port 191 in a plate 150, which plate is also a first parallel plate of a first parallel plate waveguide section 160 of waveguide plate 140. The electromagnetic wave having entered the cavity 160 of the first parallel plate waveguide section will propagate in a principal propagation direction 103 away from the first port 191 with an electrical, E, field 104 aligned with the thickness 101 of the first parallel plate waveguide section plate 140 and a magnetic, H, field 105, perpendicular to both the propagation direction 103 and the E-field 104. The principal propagation direction 103 is the vector sum of all individual propagation directions along the wavefront 102, a sort of mean direction of the wavefront 102.

Please amend the paragraphs beginning at page 14, line 4, and continuing to page ?, line ?, as follows:

The wavefront 106 that exits the slot 170 into the second parallel plate waveguide section 180 will attain a new principal propagation direction 107 away from the curved slot 170. The electrical, E, field 108 is still aligned with the thickness 101 of the waveguide plate and the magnetic, H, field 109 is perpendicular to both the propagation direction 107 and the E-field 108. The shape of the wavefront 106 will depend on the shape of the curved slot 170, i.e. when different parts of the incident wavefront 102 hits the corresponding place of the curved slot 170. If, as illustrated, the incident wavefront 102 has originated from a point source and the curved slot 170 is parabolic, then the resulting wavefront 106 will be a perfect straight line. Thus by adjusting the shape of the slot 170 and the relationship of the first port 191 or ports with the slot 170, different line sources can be created. The wavefront

106 will then propagate 107 towards a second end 184, away from the curved slot 170 and exit the waveguide path length adjuster according to the ~~invention~~ example embodiment through the second port 195. The second port 195 is a part of a plate 110 that is also a second parallel plate of the second parallel plate waveguide section. A side 196 of the second port 195, furthest away from the curved slot 170, is typically aligned with the second end 184 of the second parallel plate waveguide section 180. The length of the second parallel plate waveguide section is, in this example, such that the first port 191 and the second port 195 align.

The waveguide path length adjuster according to the ~~invention~~ technology may be varied in a number of different ways. Figure 2 illustrates an H-plane waveguide path length adjuster according to the ~~invention~~ an example embodiment in a plate structure. The plate structure comprises waveguide plates 220, 240 and port, slot, and cover plates 210, 230, 250. The first port 291 enters the plate 240 of the first parallel plate waveguide section from the short end instead of through a cover plate 250. An electromagnetic wave entering the first port 291 will have its principal propagation direction 203 towards a curved waveguide slot 270 located between and coupling the first parallel plate waveguide section 260 with a second parallel plate waveguide section 280. The wave will continue in the second parallel plate waveguide section 280 in a new principal propagation direction 207 towards a second port 295. In relation to Figure 1, the E-field 204, 208 and the H-field 205, 209 have altered directions. Further the thickness 201 of the waveguide plates 220, 240 and the width of the curved slot 270, the first port 291 and the second port 295 have increased to typically more than one half free space wavelength.

Figures 3A to 3C illustrate further examples of E-plane waveguide path length adjusters according to the ~~invention~~ example embodiments in a plate structure, with and without a first port matching. The plate structures comprise waveguide plates 320, 340 with corresponding waveguide cavities 360, 380 and port, slot, and cover plates 310, 330, 350 with corresponding first port 391, second port 395, and curved slot 370. Figure 3A illustrates a similar waveguide path length adjuster to that of Figure 1, with another type of

first port 391. Figure 3B illustrates a waveguide path length adjuster such as the one illustrated in Figure 3A with the addition of first port matching 365 protrusions. There are a number of ways the first port 391 can be properly matched to the first parallel plate waveguide section 360. Figure 3C illustrates another method of matching the first port 391 to the first parallel plate waveguide section 360. This second method creates a slanted end 364 of the first parallel plate waveguide section 360 ~~end 364~~ closest to the first port 391 by means of a cut out 366 in an additional slot plate 331. The additional slot plate 331 will also comprise a curved slot 371, which is to align with the curved slot 370 of the slot plate 330. The cut out 366 will reach approximately half way down the end 364 when the plates are assembled. A slanted end 364 of the first parallel plate waveguide section 360 at the first port 391 ~~end 364~~ could be accomplished in other manners, such as, in a waveguide plate structure, machining the end 364 to a desired shape. Figure 3C also illustrates a shorter second parallel plate waveguide section 381 in a corresponding waveguide plate 321 to thereby be able to place a second port 396 in a corresponding plate 311 at a needed location. This relocation of the ports is possible since there is no radiation within the waveguide path length adjuster according to ~~the invention~~the example embodiment.

Figures 4A and 4B illustrate still further examples of E-plane waveguide path length adjusters according to ~~the invention~~an example embodiment in a plate structure, with different matchings of the path controllers with the coupled parallel plate waveguide sections. As previously, the plate structures comprise waveguide plates 420, 440 with corresponding waveguide cavities 460, 480 and port, slot, and cover plates 410, 430, 450 with corresponding first port 491, second port 495, and curved slot 470. Figure 4A illustrate a first example of matching the curved slot 470 to each one of the parallel plate waveguide sections 460, 480, where indentations 475, 476 into each respective waveguide cavity 460, 480 in the vicinity of the assembled location of the curved slot 470. Figure 4B illustrate a second example where cut outs 478, 479 are used. The cut outs 478, 479 are such that they, when the structure is assembled, extend into a respective cavity 460, 480 and align

preferably approximately half way down onto a respective waveguide end 462, 482 by the curved slot 470. This will then create a proper transition between the curved slot 470 and each respective waveguide 460, 480. Due to the use of cut outs 478, 479 in the first port 492 plate 452 and the second port 496 plate 413, then it is preferably suitable to use additional cover plates 451, 411 with corresponding ports 491, 495.

The invention is not restricted to the use of only one curved slot with corresponding coupled waveguides. Figure 5 illustrates an example of a Cassegrain type E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a plate structure. In this example the transformation between one, or more, point type sources and a line source is performed in two stages, each stage comprising a curved slot according to ~~the invention~~an example embodiment. The structure comprises a first 560, a second 580 and a third 565 parallel plate waveguide section 560, 565, 580 formed by corresponding waveguide plates 540, 545, 520 and cover plates 510, 535, 531, 550. The cover plates in this example are shared among different waveguides, ports 591, 595 and curved slots 570, 575. The third parallel plate waveguide section 565 could also be called an intermediate waveguide since it is placed in between the first parallel plate waveguide section 560 and the second parallel plate waveguide section 580 in the propagation path. An electromagnetic wave entered through the first port 591 will propagate away from the first port 591 in the first parallel plate waveguide section 560 towards a slot end 562 and a first curved slot 570. The slot end 562 and a first slot end 567 of the third waveguide 565 will preferably be aligned with a curved side 572 of the first curved slot 570 furthest away from the first port 591, at least by the first curved slot 570. The propagation path length that the electromagnetic wave has propagated has been at least partially adjusted in relation to where the wave entered the first curved slot 570. The electromagnetic wave will continue propagation in the third waveguide 565 from the first slot end 567 towards a second slot end 569 and a second curved slot 575. The second slot end 569 and a slot end 582 of the second waveguide 580 will preferably be aligned with a curved side 577 of the second curved slot ~~577~~ 575 furthest away from the first curved slot 570, at least by the second curved slot

~~577~~575. The propagation path length that the electromagnetic wave has propagated has been finally adjusted in relation to where the wave entered the second curved slot ~~577~~575. The electromagnetic wave will continue propagation in the second waveguide 580 from the slot end 582 towards the second port 595. At each curved slot 570, ~~577~~ 575 the propagation path length of the electromagnetic wave is adjusted, i.e. the wave's wavefront shape is changed by each curved slot 570, ~~577~~575. Another type of two curved slots and three waveguides propagation path length adjustment structure is the Gregorian. The invention is not limited to two curved slots structures.

Another variation of a waveguide path length adjuster according to ~~the invention~~an example embodiment is illustrated in Figure 6. Figure 6 illustrates an E-plane waveguide path length adjuster between a first port 691 and a second port 695 with an offset first waveguide 660 into a path controller 670 ~~according to the invention~~ in a plate structure 610, 620, 630, 640, 650. Here it can be seen that a principal propagation direction of a first waveguide 660, in the plane of the first waveguide plate 640, is not parallel with a principal propagation direction of a second waveguide 680, in the plane of the second waveguide plate 620.

Figure 7 illustrates an E-plane waveguide path length adjuster with two first ports 793, 794 into a first waveguide 760 through a curved slot 770 into a second waveguide 780 to a second port 795 ~~according to the invention~~ in a plate structure 710, 720, 730, 740, 750. The curved slot 770 will commonly be adapted in its curvature to handle the multi curvature wavefront from the two or more first ports 793, 794.

Other common waveguide constructional techniques are illustrated in Figures 8 to 13. Figure 8A illustrates the three basic separate parts 860, 870, 880 of a basic H-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a ~~conventional~~ waveguide structure. A basic waveguide path length adjuster according to the ~~invention~~ example embodiment comprises a path controller 870, a first parallel plate waveguide section 860, and a second parallel plate waveguide section 880. The path controller 870, is basically a slot with two curved sides, which slot is arranged to couple the

first waveguide 860 with the second waveguide 880. The first waveguide 860 comprises a first port 891 at one end, and the other end is arranged to be coupled to the path controller 870. The second waveguide 880 comprises a second port 895 at one end, and the other end is arranged to be coupled to the path controller 870. Figures 8B and 8C illustrate how such an H-plane waveguide path length adjuster according to the ~~invention~~ example embodiment can look like when assembled. Here the two curved sides 872, 874 of the curved slot 870 are clearly visible. The H-plane waveguide path length adjuster according to the example of Figure 8B has slot matchings 875, 876 in the form of indentations on each waveguide in the vicinity of the curved slot 870 and at least partially of the same type of curvature as the curved sides 872, 874. Figure 8C illustrate the same H-plane waveguide path length adjuster as that of Figure 8B, but from a different angle and with a part of the external curved side cut away. To be noted is that the curved slot 870 is not limited to a thin plate as illustrated in Figures 1 to 7.

Figures 9A and 9B illustrate an E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a ~~conventional~~ waveguide structure from different views. The adjuster comprises a first parallel plate waveguide section 960 with a first port 991, a path controller 970 with two curved sides 972, 974, and a second parallel plate waveguide section 980 with a second port 995. Figures 9A and 9B illustrate a further method of matching the waveguides to the curved slot. This matching type is accomplished by having a smoother transitioning from the outer curved side 972 of the curved slot 970 to each waveguide's outer plate than 90^{o} edges, for example as illustrated, 45^{o} sections 978, 979.

The waveguide path length adjusters illustrated so far have had the concerned waveguides parallel with each other. This will in most cases be the most practical and useful way of constructing ~~the invention~~example embodiments. However in some circumstances it might be useful and even necessary to have the parallel plates of one waveguide at an angle with the parallel plates of another waveguide. Figure 10 illustrates

an E-plane waveguide path length adjuster where a first waveguide 1060 with its first port 1091 is not parallel with a second waveguide 1080 with its second port 1095.

Figure 11 illustrates a baffle antenna with an E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a ~~conventional~~ waveguide structure. Typically a transceiver, a receiver or a transmitter would be connected to the antenna via a first port 1191 of the antenna. The antenna further comprises a waveguide path length adjuster with a first waveguide 1160, a second waveguide 1180 and a path controller, a slot with curved sides coupling the first and second waveguides, of which only an outer curved side 1172 is visible. To be noted is that the curved slot is here reduced to one or two plates. A 90° waveguide bend 1186 is connected to the second waveguide 1180. Thereafter a feed waveguide 1187 is a radiating line source, which in conjunction with baffles 1188 and beam shaping corrugations 1199 act as an antenna.

Figure 12 illustrates a reflector antenna with an E-plane waveguide path length adjuster according to ~~the invention~~an example embodiment in a ~~conventional~~ waveguide structure. The antenna is connected by means of a mechanical coupling 1292 to a first port. The antenna further comprises a path controller, a first 1260 and a second 1280 waveguide, the second waveguide 1280 comprises a second port 1295 that is the radiating element. Radiated electromagnetic waves are reflected on an antenna reflector 1288. If the reflector 1288 is parabolic with its focus at the second port 1295, then a locally plane two-dimensional wavefront can be accomplished. For good antenna characteristics, the antenna is covered with corrugations 1289 at vital locations.

Figure 13 illustrates a double-sided reflector antenna with an E-plane waveguide path length adjuster with two second waveguides according to ~~the invention~~an example embodiment in a ~~conventional~~ waveguide structure. The antenna is connected via a first port 1391 of a first waveguide 1360. The first waveguide 1360 is coupled to a path controller, which in this example comprises two curved slots with a common outer curved side 1372. Each one of the curved slots is coupled to a respective second waveguide 1382, 1399, which in turn each comprise a radiating second port 1396, 1397. The radiating

second ports 1396, 1397 radiate onto a respective reflector 1388, 1389. Corrugations 1399 are placed on the antenna at vital locations.

The ~~invention~~ technology is based on the basic ~~inventive~~ idea of coupling a first and a second waveguide together via a curved slot to thereby be able to adjust a shape of a wavefront. The curved slot creates a waveguide path length adjuster according to the invention, which in most applications will adjust the lengths of different paths from a point source to a line source to be the same. The invention is not restricted to the above described embodiments, but may be varied within the scope of the following claims.